

FORM PTO-1390 (REV. 12-2001)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 198-1464	
<b>TRANSMITTAL LETTER TO THE UNITED STATES          DESIGNATED/ELECTED OFFICE (DO/EO/US)          CONCERNING A FILING UNDER 35 U.S.C. 371</b>				U.S. APPLICATION NO. (If known, see 37 CFR 1.5) <div style="font-size: 1.5em; font-weight: bold;">10/070452</div>	
INTERNATIONAL APPLICATION NO. PCT/GB00/03337		INTERNATIONAL FILING DATE August 30, 2000		PRIORITY DATE CLAIMED September 7, 1999	
TITLE OF INVENTION FABRICATION OF VENEER FACED PANELS					
APPLICANT(S) FOR DO/EO/US Grant					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> <li>1. <input type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.</li> <li>4. <input type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31).</li> <li>5. <input type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> has been communicated by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li>6. <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is attached hereto.</li> <li>b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4).</li> </ol> </li> <li>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))           <ol style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</li> <li>b. <input type="checkbox"/> have been communicated by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</li> <li>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li>10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol> <p><b>Items 11 to 20 below concern document(s) or information included:</b></p> <ol style="list-style-type: none"> <li>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li>13. <input checked="" type="checkbox"/> A FIRST preliminary amendment.</li> <li>14. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</li> <li>15. <input type="checkbox"/> A substitute specification.</li> <li>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.</li> <li>18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</li> <li>19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</li> <li>20. <input type="checkbox"/> Other items or information:</li> </ol>					

U.S. APPLICATION NO. (6/1/2001) <b>10/070452</b>		INTERNATIONAL APPLICATION NO. PCT/GB00/03337		ATTORNEY'S DOCKET NUMBER 198-1464	
<div>21. <input checked="" type="checkbox"/> The following fees are submitted:</div> <div><b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO... .. \$1040.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO... .. \$890.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO... .. \$740.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)... .. \$710.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)... .. \$100.00  <b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></div>				<b>CALCULATIONS PTO USE ONLY</b>	
				\$890.00	
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Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	11 - 20 =		x \$18.00	\$	
Independent claims	1 - 3 =		x \$84.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$280.00	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$	
<b>SUBTOTAL =</b>				\$	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
<b>TOTAL NATIONAL FEE =</b>				\$	
Fee for recording the enclosed assignment (37 CFR 1.21(h)) The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	
<b>TOTAL FEES ENCLOSED =</b>				\$	
				Amount to be refunded:	\$
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a. ☐ A check in the amount of \$ \_\_\_\_\_ to cover the above fees is enclosed.


b. ☒ Please charge my Deposit Account No. 06-1510 in the amount of \$ 890.00 to cover the above fees.  
A duplicate copy of this sheet is enclosed.

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information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR  
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO.

  
SIGNATURE  
Raymond L. Coppiellie  
NAME  
33,311  
REGISTRATION NUMBER

10/070452

JC13 Rec'd PCT/PTO 06 MAR 2002

PATENT



OFFICIAL

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Grant

International Application No.: PCT/GB00/03337

International Filing Date: August 30, 2000

Priority Filing Date: September 7, 1999

Title: Fabrication of Veneer Faced Panels

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. § 1.8(a))

I hereby certify that this correspondence is, on the date shown below, being:

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*Shaundra M. Sewin*

Date:

*3/6/02*

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

With reference to the above-identified PCT application,  
we now wish to file a national application in the United States.  
Accordingly, enclosed is an unsigned Declaration and the filing

fee, which is calculated as indicated on the attached transmittal letter and which is to be charged to our Deposit Account 06-1500.

It is our understanding that the Notification of Receipt of Record Copy and notification to the various designated offices to that effect renders it unnecessary to include a copy of the application; therefore, none is enclosed.

Prior to the examination thereof, please amend the application as follows:

IN THE CLAIMS (The "Version with markings to show changes" is attached hereto):

1(amended). A method of producing veneer faced panels, the method comprising the steps of:

- a) shaping and trimming a blank by pressing the blank between an upper tool and a lower tool of a first press, wherein the lower tool has a lower pressing surface comprising at least two flat peripheral regions such that when the press is closed, the blank is trimmed along at least two edges by the interaction of the upper tool surface and the flat peripheral regions of the lower tool surface so as to form flat end faces, each being bounded on one side by a trimmed edge, the flat end faces being substantially parallel with one another;
- b) removing the blank from the first press and placing it on a lower tool of a second press, the lower tool of the second press having a lower pressing surface shaped to receive the blank after it has been pressed, wherein the lower pressing surface comprises at least two flat peripheral regions, such that when the blank is on the lower tool of the second press, the flat end faces of the blank lie against the peripheral regions of the lower pressing

surface, the peripheral regions of the lower pressing surface extending beyond the trimmed edge of the blank;

c) superposing a veneer sheet on the blank such that the veneer overlaps at least two trimmed edges of the blank; and,

d) pressing the sheet of veneer against the blank by bringing the upper tool and the lower tool of the second press together, wherein the interaction of the upper and lower tool shapes and trims the veneer such that adjacent to at least two trimmed edges of the veneer sheet, the veneer sheet has a flat end face that lies next to and substantially coplanar with a flat end face of the blank.

3(amended). A method of producing veneer faced panels as claimed in Claim 1, wherein the end faces of the veneered panel are parallel with each other.

4(amended). A method of producing veneer faced panels as claimed in Claim 3, wherein the flat peripheral regions of the first and second press are orientated so as to be perpendicular to the direction of relative movement between the respective lower and upper tools of the first and second press.

5(amended). A method of producing veneer faced panels as claimed in Claim 1, wherein the upper tools of the first and second press are generally concave, and the respective lower tools are generally convex.

6(amended). A method of producing veneer faced panels as claimed in Claim 2, wherein the upper tools of the first and second presses each have right angled edges formed where the vertical side walls meet with the flat peripheral regions of the lower

pressing surface, and the upper tool also having has flared edges adjacent the right angled edges.

8(amended). A method of producing veneer faced panels as claimed in Claim 1, wherein the blank is made from metal.

9(amended). A method of producing veneer faced panels as claimed in Claim 1, wherein the veneer sheet comprises at least two layers, one of which is a layer of adhesive to be situated next to the metal surface when the veneer is placed over the metal for pressing.

10(amended). A method of producing veneer faced panels as claimed in Claim 1, wherein one or both tools of the first or second press are heated.

11(amended). A method of producing panels as claimed in Claim 1, wherein the first and second press respectively cut the blank and the veneer sheet along two sides.

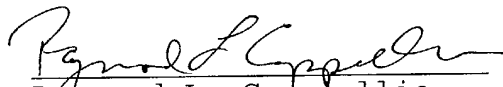
Please cancel claims 12-15.

REMARKS

As now amended, claims 1-11 remain in the application. Claims 12-15 are canceled herein.

Please charge any cost incurred in the filing of this Amendment, along with any other costs, to Deposit Account 06-1510.

Respectfully submitted,

  
Raymond L. Coppiellie  
Registration No. 33,311  
Attorney for Applicant

Date: 3/5/2002  
Ford Global Technologies, Inc.  
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313-337-1069  
Fax: [(313)] 322-7162

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1(amended). A method of producing veneer faced panels, the method comprising the steps of:

- a) shaping and trimming a blank by pressing the blank between an upper tool and a lower tool of a first press, wherein the lower tool has a lower pressing surface comprising at least two flat peripheral regions such that ~~and~~ when the press is closed, the blank is trimmed along at least two edges by the interaction of the upper tool surface and the flat peripheral regions of the lower tool surface so as to form ~~such that the blank forms flat end faces,~~ each being bounded on one side by a trimmed edge, the flat end faces being substantially parallel with one another;
- b) removing the blank from the first press and placing it on a lower tool of a second press, the lower tool of the second press having a lower pressing surface shaped to receive the blank after it has been pressed, wherein the lower pressing surface comprises at least two flat peripheral regions, such that when the blank is on the lower tool of the second press, the flat end faces of the blank lie against the peripheral regions of the lower pressing surface, the peripheral regions of the lower pressing surface extending beyond the trimmed edge of the blank;
- c) superposing a veneer sheet on the blank such that the veneer overlaps at least two trimmed edges of the blank; and,
- d) pressing the sheet of veneer against the blank by bringing the upper tool and the lower tool of the second press together, wherein the interaction of the upper and lower tool shapes and trims the veneer such that adjacent to at least two trimmed edges



11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

of the veneer sheet, the veneer sheet has a flat end face that lies next to and substantially coplanar with a flat end face of the blank.

3(amended). A method of producing veneer faced panels as claimed in Claim 1 ~~or Claim 2~~, wherein the end faces of the veneered panel are parallel with each other.

4(amended). A method of producing veneer faced panels as claimed in Claim 3 ~~any preceding claim~~, wherein the flat peripheral regions of the first and second press are orientated so as to be perpendicular to the direction of relative movement between the respective lower and upper tools of the first and second press.

5(amended). A method of producing veneer faced panels as claimed in Claim 1 ~~any preceding claim~~, wherein the upper tools of the first and second press are generally concave, and the respective lower tools are generally convex.

6(amended). A method of producing veneer faced panels as claimed in Claim 2 ~~any preceding claim~~, wherein ~~in the case of the first and second press,~~ the upper tools of the first and second presses each have right angled edges formed where the vertical side walls meet with the flat peripheral regions of the lower pressing surface, and the upper tool also having has flared edges adjacent the right angled edges.

8(amended). A method of producing veneer faced panels as claimed in Claim 1 ~~any preceding claim~~, wherein the blank is made from metal.

9(amended). A method of producing veneer faced panels as claimed in Claim 1 ~~any preceding claim~~, wherein the veneer sheet comprises at least two layers, one of which is a layer of adhesive to be situated next to the metal surface when the veneer is placed over the metal for pressing.

10(amended). A method of producing veneer faced panels as claimed in Claim 1 ~~any preceding claim~~, wherein one or both tools of the first or second press are heated.

11(amended). A method of producing panels as claimed in Claim 1 ~~any preceding claim~~, wherein the first and second press respectively cut the blank and the veneer sheet along two sides.

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## FABRICATION OF VENEER FACED PANELS

This invention relates to the fabrication of veneer  
faced panels, in particular veneer faced panels for  
5 mounting in the passenger compartment of a motor  
vehicle.

It is sometimes desirable for the visible surface of a  
decorative panel to be covered with a layer of wood  
10 veneer, and for the panel to be mounted over a surface.  
If the side faces of the panel are not covered in  
veneer, it is important to hide those faces from view  
so that the less attractive substrate material beneath  
the veneer cannot be seen. One way to achieve this is  
15 for the panel to curve towards the surface on which it  
is to be mounted, so that when the panel is mounted on  
that surface, the side faces of the panel where the  
substrate material is exposed are flat and lie flush  
against the mounting surface.

20

In a known way of fabricating such panels, the  
substrate is formed from a pre-cut metal sheet that is  
pressed to the required three dimensional shape,  
following which a sheet of veneer is pressed over the  
25 metal sheet. The sheet of veneer is chosen to slightly  
overlap the metal sheet so that the veneer covers the  
entire visible surface of the panel when the panel is  
mounted on a surface. However, fabricating veneered  
panels in this way can result in the veneer having an  
30 visibly uneven surface close to the edge of the panel  
due to the formation of a recess behind the veneer.

ART 34 AND

- 1a -

United States Patent 2,377,664 and British Patent 1,229,475 describe a method of producing a blank suitable for coated with veneer sheet, the method comprising the steps of: shaping and trimming a blank by pressing the blank between an upper tool and lower tool of a press, wherein the lower tool has a lower pressing surface comprising at least two flat peripheral regions, and when the press is closed, the blank is trimmed along at least two edges by the interaction of the upper tool surface and the flat peripheral regions of the lower tool surface, such that the blank forms flat edges each being bounded on one side by a trimmed edge, the flat and faces being substantially parallel with one another, see especially figures 1 to 5, and corresponding description, of United States Patent 2,377,664. The patents lack any teaching of the characterising steps of the method as claimed hereafter in claim 1.

- 2 -

According to the present invention, there is provided a method of producing panels with a veneer face, the method comprising the steps of:

- 5 a) shaping and trimming a blank by pressing the blank between an upper tool and a lower tool of a first press, wherein the lower tool has a lower pressing surface comprising at least two flat peripheral regions, and when the press is closed, the blank is  
10 trimmed along at least two edges by the interaction of the upper tool surface and the flat peripheral regions of the lower tool surface, such that the blank forms flat end faces each being bounded on one side by a trimmed edge, the flat end faces being substantially  
15 parallel with one another;
- b) removing the blank from the first press and placing it on a lower tool of a second press, the lower tool having a lower pressing surface shaped to receive  
20 the blank after it has been pressed, wherein the lower pressing surface comprises at least two flat peripheral regions, such that when the blank is on the lower tool of the second press, the flat end faces of the blank lie against the peripheral regions of the lower  
25 pressing surface, the peripheral regions of the lower pressing surface extending beyond the trimmed edge of the blank;
- c) superposing a veneer sheet on the blank such that  
30 the veneer overlaps at least two trimmed edges of the blank; and,

- 3 -

- d) pressing the sheet of veneer against the blank by bringing the upper tool and the lower tool of the second press together, wherein the interaction of the upper and lower tool shapes and trims the veneer such that adjacent to at least two trimmed edges of the veneer sheet, the veneer sheet has a flat end face that lies next to and substantially coplanar with a flat end face of the blank.
- 10 Fabrication of veneered panels in this way does not involve pre-cutting a blank with the required contour since the blank is cut to shape by the first press at least in part when it is pressed. Furthermore, the veneer sheet is also cut to shape at least in part by
- 15 the second press when the second press is closed in order to mould the veneer sheet.

The blank will preferably be formed from a pure metal such as aluminium or a metal alloy and for simplicity the invention will hereafter be described in terms of a

20 metal blank.

It will be understood the terms upper and lower tool are used for convenience and to not limit the relative or absolute positions of the tools, so that for example in the case of the first and the second press the respective shape and role of the upper and lower tools could be inverted, but for simplicity the invention will hereinafter be described in terms of a blank

25 placed on the lower tool of a first and second press.

30

This method conveniently makes use of a flat peripheral

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region on the lower pressing surface of the first and second press so that the pressed blank and the veneer sheet form flat and substantially co-planar end faces, thereby forming a veneered panel with substantially flat end faces, and reducing the likelihood of a blemish on the visible surface of the veneer sheet due to the formation of a recess beneath the veneer.

The flat peripheral regions will preferably be parallel with one another in each of the first and second press respectively, so that the end faces of the veneered panel are also parallel with each other. This will allow the veneered panel to be mounted with its end faces flush against a flat surface, such that the end faces cannot be seen.

To facilitate the pressing process and the formation of flat end faces of the blank and the veneer sheet, the flat peripheral regions of the first and second press may be orientated so as to be perpendicular to the direction of relative movement between the respective lower and upper tools of the first and second press.

The upper tool of the first and second press may be generally concave, and the respective lower tool may be generally convex, so that the respective lower tool can be received by the respective upper tool when the first or second press is closed.

In the case of the first and second press, the upper tool may have right angled edges formed where the vertical side walls meet with the flat peripheral

- 5 -

regions of the lower pressing surface, and the upper tool may have flared edges, so that the right angled edges of lower tool interact with the flared edges of the upper tool and cut the sheet of veneer or metal blank when the upper and lower tools are brought together.

The veneer sheet may comprise a single layer, but preferably the veneer sheet will comprise at least two layers, one of which is a layer of adhesive to be situated next to the metal surface when the veneer is placed over the metal for pressing, in order to increase the adhesion of the veneer to the metal.

To help the adhesive layer to adhere to the metal and help the other layers of veneer to be formed into the required shape, one or both tools of the second press may be heated when the veneer sheet is pressed. One or more tools of the first press may also be heated so as to reduce the rigidity of the metal blank when it is being pressed.

For simplicity, the first and second press may respectively cut the blank and the veneer sheet along two sides only rather than along the entire periphery of the panel. Sheets of metal and veneer may then be dispensed from a roll and pre-cut to the required length before being pressed and formed into veneered panels.

The shaped and trimmed blank from stage a) in the aforementioned method is a commercial item that may be



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sold and manufactured separately.

Accordingly, a second aspect of the invention provides a shaped and trimmed blank suitable for being coated  
5 with a veneer sheet, the blank being shaped and trimmed by pressing the blank between an upper tool and a lower tool of a first press, wherein the lower tool has a lower pressing surface comprising at least two flat peripheral regions, such that when the press is closed,  
10 the blank is trimmed along at least two edges by the interaction of the upper tool surface and the flat peripheral regions of the lower tool surface, and the blank forms flat end faces each being bounded on one side by a trimmed edge, the flat end faces being  
15 substantially parallel with one another.

The invention will now be further described by way of example, with reference to the accompanying drawings in which:

20

Figure 1 shows a cross sectional view of a veneered panel according to the invention;

Figure 2 shows a cross sectional view of a first press  
25 in an open position with a metal blank therein;

Figure 3 is a view corresponding to Figure 1 but showing the first press in a closed position after the metal blank has been pressed;

30

Figure 4 shows a cross sectional view of a second press in a closed position with a layer of veneer pressed

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against the metal blank;

Figure 5 is an expanded view of the left hand side circled area in Figure 3;

5

Figure 6 is an expanded view of the left hand side circled area in Figure 4; and,

Figure 7 is a view corresponding to Figure 6 but  
10 showing a metal blank that has not been pinch trimmed.

Figure 1 shows a veneered panel 10 in the finished state mounted over a surface 12. The veneered panel comprises a curved metal sheet 14 having a mounting  
15 pillar 15 extending from the inwardly facing surface of the metal sheet 14 so that the veneered panel can be mounted on the surface 12. The mounting pillar can be shaped as a fixing blade or stud and is to be used when attaching the panel to a motor vehicle assembly. The  
20 outwardly facing surface of the metal sheet 14 is completely covered with a sheet of wood veneer 16 when viewed in cross section as shown in Figure 1.

When the veneered panel 10 is mounted on a surface 12,  
25 only the outwardly facing side of the panel 10 having the veneer sheet 16 is visible, and the inwardly facing side is hidden from view.

The curvature of the veneered panel 10 increases near  
30 the edges of the veneered panel where the panel curves inwardly towards the surface 12 and terminates in flat end faces 18 that lie parallel with one another against

- 8 -

the surface 12. In Figure 1 the end faces 18 lie in the same plane since the surface 12 is flat, but the end faces 18 would lie in different planes if the surface 12 were stepped.

5

The sheet of veneer 16 extends to the end faces 18 in order to completely cover the metal sheet 14 from view, and so the end faces 18 each consist of an area of metal and an area of veneer.

10

Some of the stages involved in the fabrication of a veneered panel of the type shown in Figure 1 are shown in Figures 2 to 4. In the first stage of fabrication, a metal blank 22 is placed in a first press 20, between a lower tool 24 having a lower pressing surface 25 and an upper tool 26 having an upper pressing surface 27, such that the metal blank 22 rests on the pressing surface 25 of the lower tool 24 when the first press 20 is in the open position as shown in Figure 2. The metal blank 22 is wider than the lower tool 24 in the cross sectional direction of Figure 2, and so the edge portions 28 of the metal blank 22 overlap the edges of the lower tool 24.

15

The upper pressing surface 27 is generally concave, and the lower pressing surface 25 is generally convex, so that the lower tool 24 can be received by the upper tool 26 when the upper and lower tools 24,26 are brought together.

25

The central portions of the upper and lower surfaces 25,27 are complimentary to each other so that when the

30

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upper and lower tools 24,27 are brought together under pressure as shown in Figure 3, the central region of the metal sheet 22 becomes curved but keeps a uniform thickness.

5

When viewed in cross section, the side portions of the upper pressing surface 27 curve continuously, whereas the lower pressing surface 25 has flat side portions 30 that are parallel to one another and substantially perpendicular to the direction of relative movement between the lower and upper tools 24,26.

10

The edge portions 30 each make a right angled corner with the supporting side walls of the lower tool, and when the upper and lower tools 24,26 are brought together, the right angled corners of the lower tool 24 contact the upper pressing surface 27 and cut away the excess metal regions 28 of the blank 22 overlapping the lower tool 24, thereby forming a new metal edge.

20

The force applied by the upper pressing surface 27 and the edge portion 30 of the lower pressing surface 25 has a shearing effect on the metal blank 22 with the result that adjacent to the newly formed edge, when viewed in cross section, the blank forms substantially flat end faces 34 almost parallel with the flat side portions 30 of the lower tool 24 (see Figure 5). The so formed end faces 34 of the metal blank have approximately the same width as the flat side portions 30 of the lower tool 24, and the angle between the end faces 34 and the flat side portions 30 is typically less than five degrees.

30

- 10 -

To prevent excessive pressure being applied at the point of contact between the upper and lower tools 24,26, blocks 32 situated remotely from the pressing surfaces 25,27 are provided to bear the force between the tools 24,26 when they are brought into contact.

The blank 22 having been shaped in the way described above now has the shape of the metal sheet 14 shown in Figure 1 on which the veneer sheet 16 is to be affixed.

The next step is to remove the blank 22 (which will now be referred to as the metal sheet 14) from the first press 20 and place it in a second press 40 having an upper tool 46 with an upper pressing surface 47 and a lower tool 44 with a lower pressing surface 45.

The lower pressing surface 45 of the second press 40 has the same shape as lower pressing surface 25 of the first press 20 in order to accept the pressed metal sheet 14, but the lower tool 44 has flat side portions 31 that extend beyond the edge of the flat end faces 34 of the metal sheet 14 when the sheet 14 is on the lower tool 44, so that the metal sheet does not completely cover the lower pressing surface 45.

The upper pressing surface 47 of the second press 40 curves continuously in a similar manner to that of the first press 20 but is of increased width to accept the wider lower tool 44 of the second press 40 when the second press 40 is closed.

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With the second press 40 in the open position and the metal sheet 14 on the lower tool 44, a sheet of wood veneer 16 is placed over the metal sheet 14. The sheet of wood veneer 16 is initially flat and extends beyond the edge of the lower tool 44. When the press 40 is closed, the sheet of veneer 16 deforms and is pressed against the metal sheet 14 by the upper tool 46 as shown in Figure 4. The excess veneer extending beyond the lower tool 44 is cut away due to the co-operation between the upper and lower pressing surfaces 45,47 when the press is closed.

In the region between the edge of the lower pressing surface 45 and the edge of the metal sheet 14, the veneer sheet 16 is exposed to the flat side portions of the lower tool 44 and is moulded to form flat end faces 33 adjacent to and substantially parallel with the flat end faces 34 of the metal sheet 14.

The sheet of veneer 16 in the present example comprises two layers; an adhesive under layer 16a that makes contact with the metal sheet 14 and a decorative outer layer 16b. Each layer is typically about 0.5 mm thick.

To melt the resins in the veneer and help the sheet of veneer 16 to deform, the upper and lower tools 44,46 of the second press 40 are heated to about 145 degrees Celsius. The heat applied to the veneer sheet 16 also helps the veneer to stick to the metal 14 surface.

The sheet of metal 14 will normally be made of aluminium or an aluminium rich alloy.

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The first and second pressing tools 20,40 as shown in figures 1 to 6 form at two edges of the veneered surface 10, but the pressing tools can be shaped to  
5 form the edge all the way around the veneered surface 10.

If a veneered panel 10 is made from a blank 14 that is cut to the two dimensional shape of the panel 10 before  
10 the blank 14 is pressed, then once the blank has been pressed into a three dimensional shape, it is possible for the end faces 34 of the pressed blank to be at an angle of about 120 degrees to one another rather than parallel as shown in Figures 7 and 8 (parts  
15 corresponding to parts in previous figures have been given the same reference numerals).

When a sheet of veneer 16 extending sufficiently beyond the pressed blank so as to cover its end faces 34 is  
20 pressed against the blank 14, then this can result in the end faces 18 of the so-formed veneered panel 10 having a recess (marked by a cross in Figure 7). This recess can cause an adjacent part of the veneer sheet 16 to depart from the smooth shape of the pressing  
25 surface upper pressing surface 47, thereby producing a blemish on the visible part of the panel.

In contrast, the end faces 18 of the veneered panel fabricated according to the present invention has no  
30 substantial recess (the small recess seen in Figures 5 and 6 is unimportant), allowing the veneered panel 10 to have a smooth visible surface along its outer edge.

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The veneered panel 10 can then be positioned such that the end faces 18 of the panel 10 are flush with the surface on which the panel 10 is mounted.

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## CLAIMS

1. A method of producing veneer faced panels, the method comprising the known step of:

- 5 a) shaping and trimming a blank (22) by pressing the blank (22) between an upper tool (26) and a lower tool (24) of a first press (20), wherein the lower tool (24) has a lower pressing surface (25) comprising at least two flat peripheral regions (30), and when the press (20) is closed,  
10 the blank (22) is trimmed along at least two edges (28) by the interaction of the upper tool surface (25) and the flat peripheral regions (30) of the lower tool surface (25), such that the blank (22) forms flat end faces (34) each being bounded on one side by a trimmed edge, the flat end faces  
15 (34) being substantially parallel with one another,

characterised by the further steps of:

- b) removing the blank (22) from the first press (20) and placing it on a lower tool (44) of a second press (40), the lower tool (44) having a lower pressing surface (45)  
20 shaped to receive the blank (20,14) after it has been pressed, wherein the lower pressing surface (45) comprises at least two flat peripheral regions (31), such that when the blank (14) is on the lower tool (44) of the second press (40), the flat end faces of the blank (14) lie against the  
25 peripheral regions (31) of the lower pressing surface (45), the peripheral regions (31) of the lower pressing surface (45) extending beyond the trimmed edge of the blank (14);

- c) superposing a veneer sheet (16) on the blank (14) such that the veneer (16) overlaps at least two trimmed  
30 edges of the blank (14); and,

- d) pressing the sheet of veneer (16) against the blank (14) by bringing an upper tool (46) and the lower tool (44) of the second press (40) together, wherein the interaction of the upper (46) and lower (44) tool shapes and  
35 trims the veneer (16) such that adjacent to at least two trimmed edges of the veneer sheet (16), the veneer sheet has

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a flat end face (33) that lies next to and substantially coplanar with a flat end face (34) of the blank (14).

2. A method of producing panels as claimed in Claim 1, wherein the peripheral regions (30) are parallel with one another in each of the first (20) and second press (40) respectively.

3. A method of producing veneer faced panels as claimed in Claim 1 or Claim 2, wherein the end faces (33) of the veneered panel (16) are parallel with each other.

4. A method of producing veneer faced panels as claimed in any preceding claim, wherein the flat peripheral regions (30,31) of the first (20) and second press (40) are orientated so as to be perpendicular to the direction of relative movement between the respective lower (20) and upper (40) tools of the first and second press.

5. A method of producing veneer faced panels as claimed in any preceding claim, wherein the upper tools (26,46) of the first (20) and second (40) press are generally concave, and the respective lower tools (24,44) are generally convex.

25

6. A method of producing veneer faced panels as claimed in any preceding claim, wherein in the case of the first (20) and second (40) press, the upper tool (26,46) have right angled edges formed where the vertical side walls meet with the flat peripheral regions of the lower pressing surface, and the upper tool has flared edges.

7. A method of producing veneer faced panels as claimed in Claim 6, wherein the right angled edges of the lower tool interact with the flared edges of the upper tool and cut the sheet of veneer (16) or metal blank (14) when the upper and lower tools are brought together.

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8. A method of producing veneer faced panels as claimed in any preceding claim, wherein the blank (14) is made from metal.

5

9. A method of producing veneer faced panels as claimed in any preceding claim, wherein the veneer sheet comprises at least two layers, one of which is a layer of adhesive to be situated next to the metal surface when the veneer is placed over the metal for pressing.

10

10. A method of producing veneer faced panels as claimed in any preceding claim, wherein one or both tools of the first (20) or second (40) press are heated.

15

11. A method of producing panels as claimed in any preceding claim, wherein the first and second press respectively cut the blank and the veneer sheet along two sides.

20

12. A veneer faced panel produced by a method as claimed in any one of the preceding claims.

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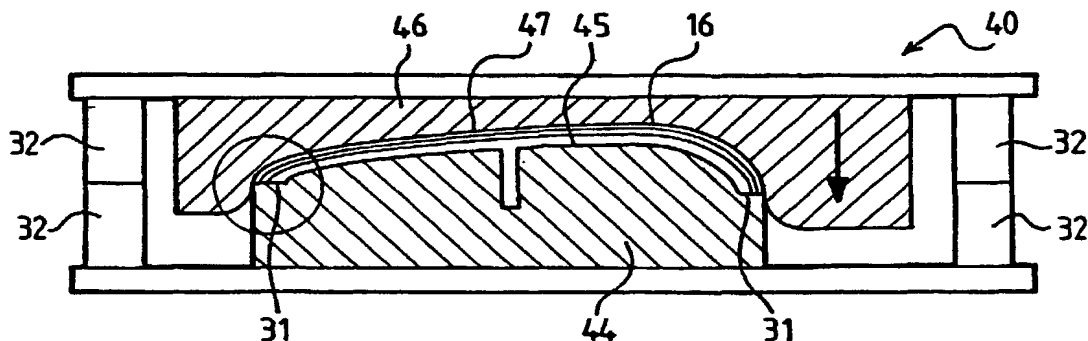
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(54) Title: FABRICATION OF VENEER FACED PANELS



(57) Abstract: This invention relates to the fabrication of veneer faced panels (10), in particular veneer faced panels (10) for mounting in the passenger compartment of a motor vehicle. A blank (14) is shaped and trimmed by placing it in a first press (20) having a tool with a flat peripheral pressing surface (30) and then placed in a second press (40) also having a flat peripheral pressing surface (31) following which a layer of veneer (16) is placed over the blank (14) before being pressed against the blank (14), so that a veneered panel (10) is formed with flat and parallel end faces (18).

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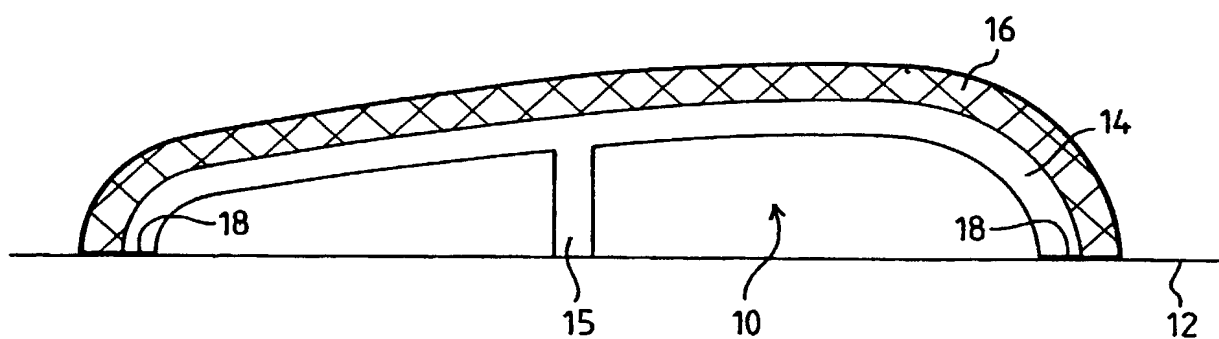


Fig. 1

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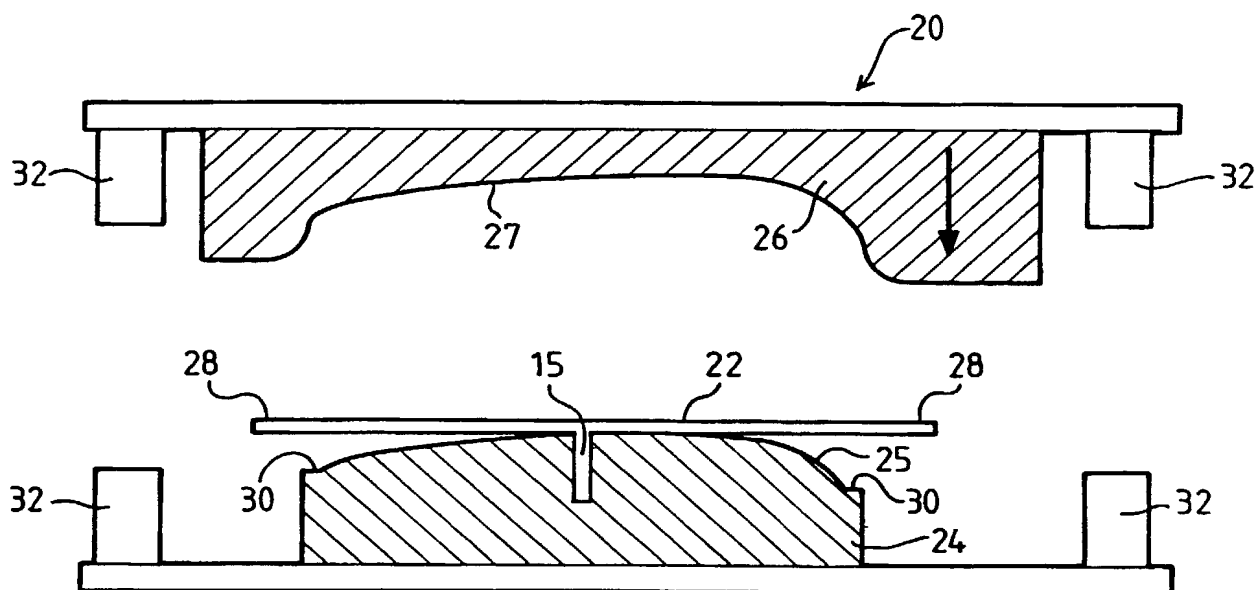


Fig. 2

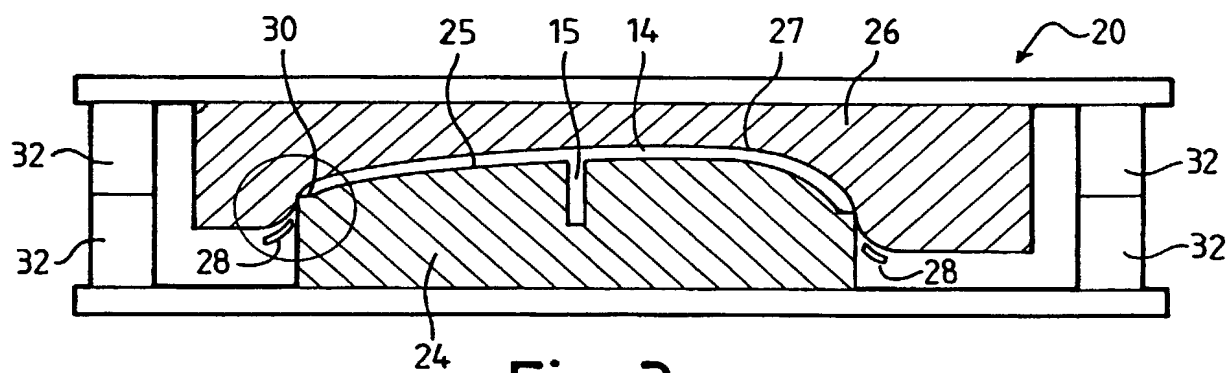


Fig. 3

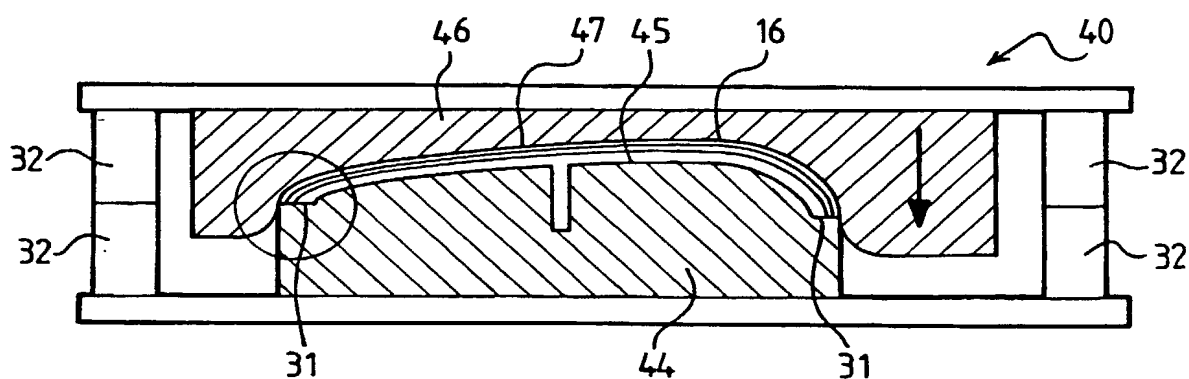


Fig. 4

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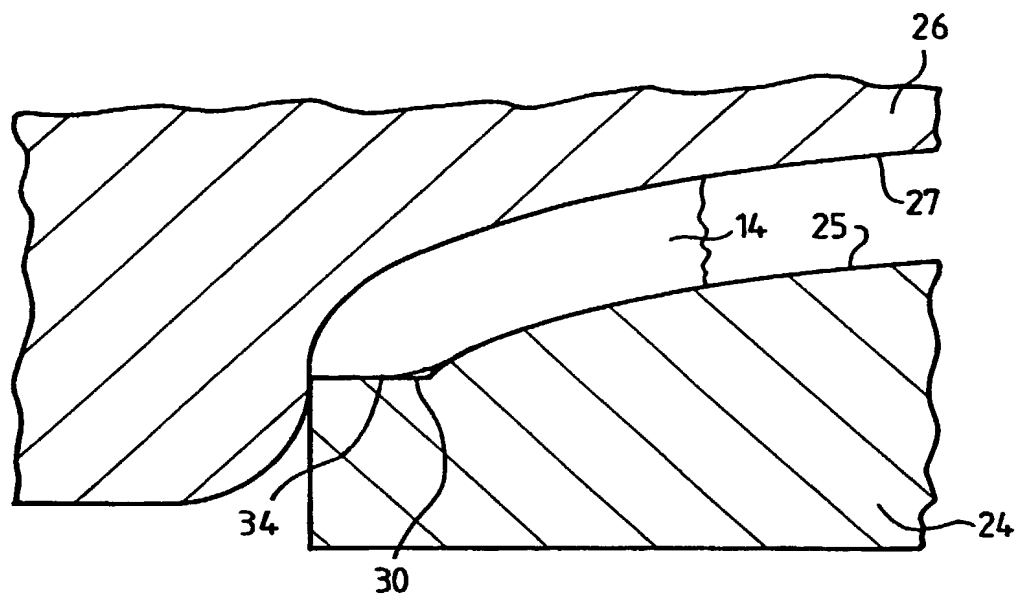


Fig. 5

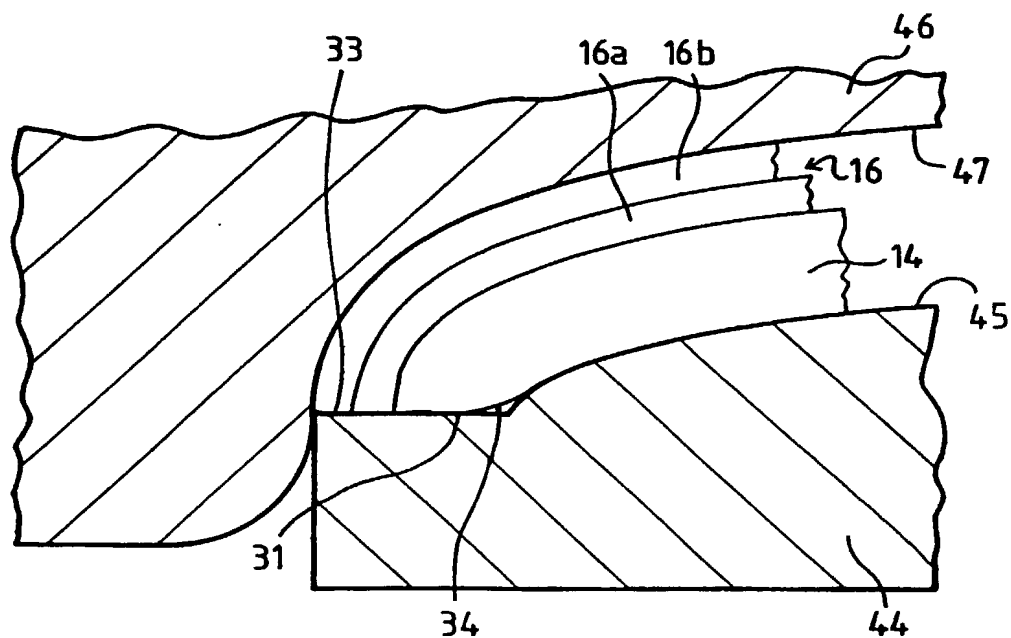


Fig. 6

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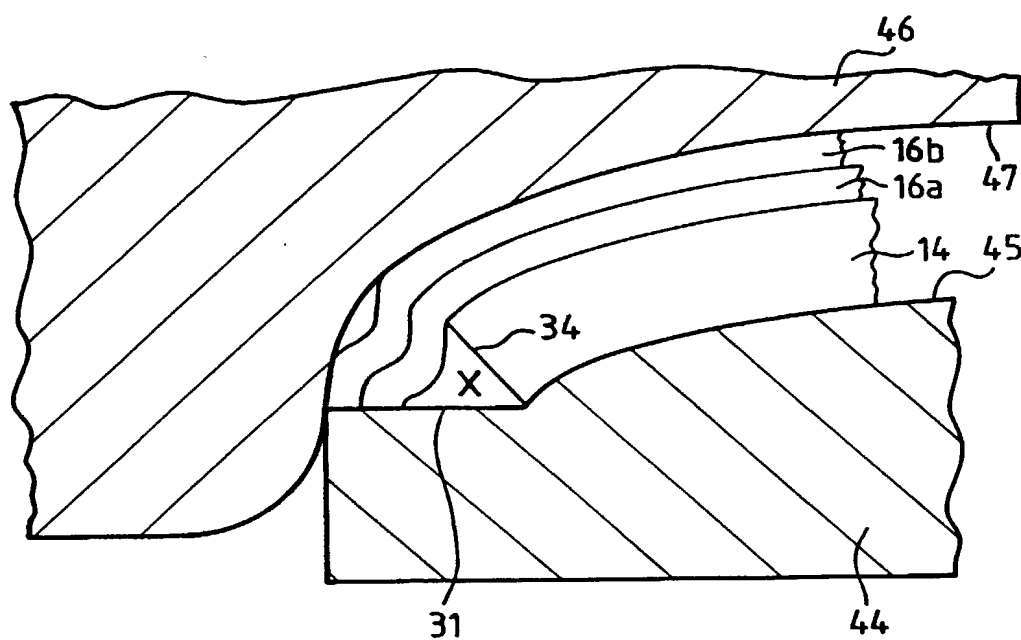
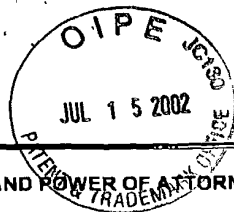


Fig. 7



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Attorney's Docket No.  
198-1464

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**FABRICATION OF VENEER FACED PANELS**

the specification of which is attached hereto.

I have reviewed and understand the contents of the specification identified above, including the claims.

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GB	GB00/03337	9/7/1998		YES	

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Michael Charles Grant 7 Peregrine Drive Allesley Green Coventry CV5 7QW GB	Coventry CV5 7QW GB GBX	United Kingdom	M. Grant	7th March 2002

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